AMENDMENTS TO THE CLAIMS:

The listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended)   A method of allocating queues in a network device, the method comprising:

receiving a packet at an ingress port of the network device;

making a classification for an incoming packet, the classification comprising at least one of an egress port number or an ingress port number;

determining, by searching a memory of allocated physical queues, whether a previously-allocated queue exists for the classification;

allocating, at the ingress port, a queue for the classification ~~when~~ if it is determined that no previously-allocated queue exists for the classification;

storing control information relating to the packet in the allocated queue;

saving packet payload information in a different location from that of the allocated queue; and

~~after the storing step,~~ scheduling the packet for transmission between the ingress port and one of a plurality of egress ports of the network device.

2. (Canceled)

3. (Original)   The method of claim 1, wherein the queue is a virtual output queue.

4. (Previously presented)   The method of claim 1, further comprising:

detecting when a previously-allocated queue is empty; and

de-allocating the empty previously-allocated queue.

5. (Original)   The method of claim 1, wherein the queue is associated with an ingress port.

6. (Original)   The method of claim 1, wherein the classification is based on a packet source, a packet destination or a packet priority.

7. (Previously presented)   The method of claim 1, wherein the classification further comprises a priority number.

8. (Previously presented)   The method of claim 1, wherein the determining step comprises addressing the memory of allocated physical queues in a single cycle.

9. (Previously presented)   The method of claim 4, further comprising updating a memory when a queue is de-allocated, wherein the memory indicates whether the classification corresponds to the previously-allocated queue.

10. (Previously presented)   The method of claim 4, wherein the network device further comprises a free list that indicates queues available for allocation and wherein the method further comprises updating the free list when the previously-allocated queue is de-allocated.

11. (Currently Amended)   A network device, comprising:

means for receiving a packet at an ingress port of the network device;

means for making a classification for an incoming packet, the classification comprising at least one of an egress port number or an ingress port number;

means for determining, by searching a memory of allocated physical queues, whether a previously-allocated queue exists for the classification;

means for allocating, at the ingress port, a queue for the classification ~~when~~ <u>if it is determined that</u> no previously-allocated queue exists for the classification;

means for storing <u>control</u> information relating to the packet in the allocated queue <u>and for saving packet payload information in a different location from that of the allocated queue;</u> and

means for scheduling~~, after the storing step,~~ the packet for transmission between the ingress port and one of a plurality of egress ports of the network device.

12. (Original) The network device of claim 11, wherein the queue is associated with an ingress port of the network device.

13. (Original) The network device of claim 11, wherein the queue is a virtual output queue.

14. (Previously presented)   The network device of claim 11, further comprising:

      means for detecting when the queue is empty; and

      means for de-allocating the empty queue.

15. (Original) The network device of claim 11, wherein the queue is associated with an ingress port.

16. (Original) The network device of claim 11, wherein the classification is based on a packet source, a packet destination or a packet priority.

17. (Previously presented)   The network device of claim 11, wherein the classification comprises a priority number.

18. (Previously presented)   The network device of claim 11, wherein the determining means comprises means for addressing the memory.

19. (Previously presented)   The network device of claim 14, further comprising means for updating a memory when the queue is de-allocated, wherein the memory indicates whether the classification corresponds to the previously-allocated queue.

20. (Original) The network device of claim 14, wherein the network device further comprises a free list that indicates queues available for allocation.

21. (Previously presented)   The network device of claim 20, further comprising means for updating the free list when the previously-allocated queue is de-allocated.

22. (Currently Amended)   A computer program embodied in a machine-readable medium, the computer program configured to control a network device to perform steps comprising:

receiving a packet at an ingress port of the network device;

making a classification for an incoming packet, the classification comprising at least one of an egress port number or an ingress port number;

determining, by searching a memory of allocated physical queues, whether a previously-allocated queue exists for the classification;

allocating, at the ingress port, a queue for the classification ~~when~~ if it is determined that no previously-allocated queue exists for the classification;

storing control information relating to the packet in the allocated queue;

saving packet payload information in a different location from that of the allocated queue; and

~~after the storing step,~~ scheduling the packet between the ingress port and one of a plurality of egress ports of the network device.

23. (Currently Amended)   A network device, comprising:

a plurality of ingress ports configured to receive an incoming packet;

a classification engine for making a classification for the incoming packet, the classification comprising at least one of an egress port number or an ingress port number;

a content addressable memory that indicates whether a previously-allocated queue exists for the classification; and

a processor configured to do the following:

allocate, at an ingress port of the plurality of ingress ports, a queue for the classification ~~when~~ if it is determined that no previously-allocated queue exists for the classification;

~~and further configured to~~ store control information relating to the packet in the allocated queue;

save other packet information in a different location from that of the allocated queue;

~~and further configured to~~ schedule, ~~after the storing of the information,~~ the packet for transmission between the ingress port and one of a plurality of egress ports of the network device.

24. (Previously presented) The network device of claim 23, wherein the content addressable memory is searchable in one clock cycle.

25. (Original) The network device of claim 23, wherein the memory is a random access memory.

26. – 28. (Canceled)

29. (Previously presented) The method of claim 1, further comprising:

determining a first number of packets that an ingress port of the network device can receive; and

allocating a second number of physical queues for the ingress port, wherein the second number is less than or equal to the first number.

30. (Previously presented) The method of claim 29, wherein the network device operates according to a Fibre Channel protocol and wherein the determining step is based on a number of buffer-to-buffer credits granted by the ingress port.

31. (Previously presented) The method of claim 29, further comprising:
identifying a category for each packet arriving at the ingress port;
correlating the category to an existing physical queue; and
storing packet information in the existing physical queue.

32. (Original) The method of claim 29, further comprising:
identifying a category for each packet arriving at the ingress port; and
assigning the category to a physical queue, wherein the network device allocates a new physical queue only when there is no existing physical queue for the category.

33. (Previously presented) The network device of claim 31, wherein the packet information comprises control information selected from a list consisting of destination information, source information, priority information, payload type information and payload size information.

34. (New)   An apparatus, comprising:

a plurality of ports, comprising at least one ingress port and at least one egress port;

a classification engine for making a classification for an incoming packet from an ingress port, the classification comprising at least one of an egress port number or an ingress port number;

a memory system; and

a processor configured to do the following:

determine, with reference to a first memory of the memory system, whether a previously-allocated queue exists for the classification;

allocate, at an ingress port of the plurality of ingress ports, a queue for the classification if no previously-allocated queue exists for the classification;

store control information relating to the packet in a second memory location of the memory system that corresponds to the allocated queue;

save other packet information in a third memory location of the memory system; and

schedule the packet for transmission between the ingress port and one of the plurality of egress ports of the network device.

35.   (New)   The apparatus of claim 34, wherein the other packet information comprises payload information.

36.   (New)   The apparatus of claim 34, wherein the second memory location comprises a buffer of a microprocessor.

37.   (New)   The apparatus of claim 36, wherein the third memory location is in a device other than the microprocessor.